IONIC vs. COVALENT

Name_____

In general, how do the melting points differ between ionic and covalent bonded materials?

IONIC — HIGH M.P.

COVALENT — LOW M.P.

How does bonding affect whether a substance conducts electricity?

COVALENT BONDS CANNOT CONDUCT ELECTRICITY BECAUSE THERE IS NO METAL INVOLVED. IONIC COMPOUNDS CAN ONLY CONDUCT ELECTRICITY WHEN DISSOLVED OR MELTED AND THE METAL ION IS FREE.

Based on the properties of the following materials, determine whether they are made primarily of ionic or covalent compounds. Explain your reasoning.

a. Rubbing Alcohol – COVALENT - LIQUID AT ROOM TEMP & IS FLAMMABLE

b. Water – H_2O – DOES NOT CONTAIN METAL & IS A LIQUID AT ROOM TEMP

c. Gasoline – LIQUID AT ROOM TEMP & FLAMMABLE

d. Table Salt - SOLID AT ROOM TEMP — BRITTLE AND HARD

e. Compound A has a melting point of 545 degrees Celsius and dissolves well in water.

IONIC – ↑ MP AND DISSOLVES

f. Compound B is a brittle material used to melt ~~road~~ ice during storms

IONIC - SALT = METAL + HALOGEN

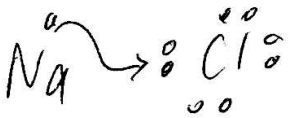
g. Compound C melts at 85 degrees Celsius and catches fire when heated to 570 degrees Celsius

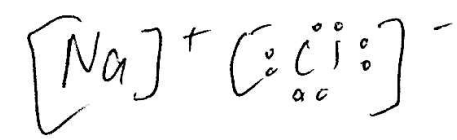
COVALENT – LOW M.P. AND FLAMMABLE

Explain why ionic compounds are formed when a metal bonds with a nonmetal, but covalent compounds are formed when two nonmetals bond. Use the word electronegativity in your answer!

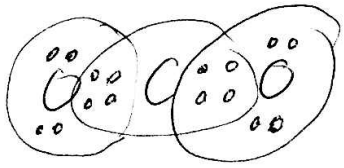
Complete the Lewis Dot Diagrams for the following. First indicate if the compound is ionic or covalent, and then draw the resulting structure. [LEWIS DOT DIAGRAM - MUST INCLUDE START AND FINISH DIAGRAMS FOR IONIC AND CIRCLES SHOWING SHARED e- FOR COVALENT]

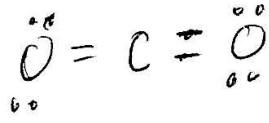
a. NaCl





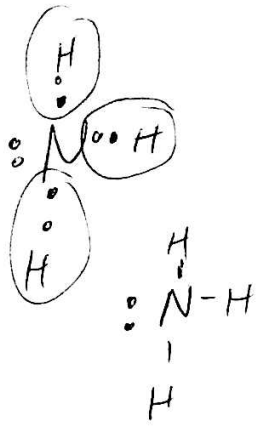
b. CO_2



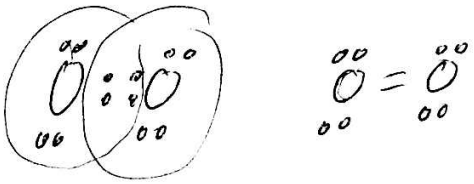


Name_____

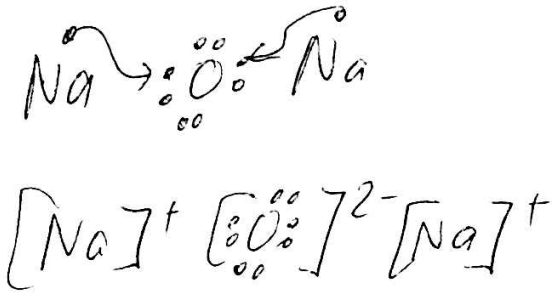
c. NH_3



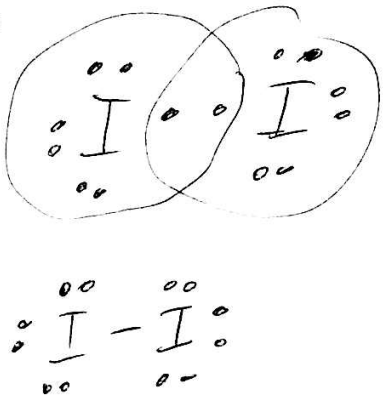
d. O_2



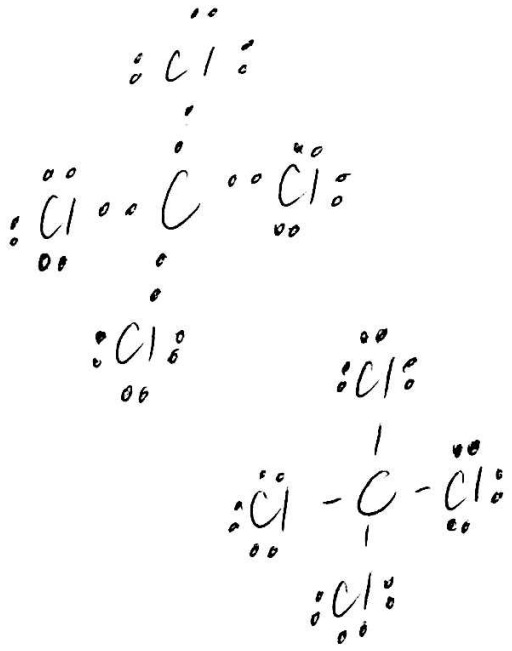
c. Na_2O



f. I_2



g. CCl_4



h. MgO